

REMARKS

The Final Office Action mailed September 27, 2005, has been received and reviewed. Claims 8 through 19 are currently pending in the application. Claims 8 through 19 stand rejected. Applicant has amended claim 8, and respectfully request reconsideration of the application as amended herein. These remarks are in response to the Final Office Action received by Applicant. Applicant acknowledges receipt of the Advisory Action mailed December 12, 2005, wherein the Examiner states that the request for reconsideration does not place the application in condition for allowance because all of the limitations have been previously addressed. Applicant respectfully disagrees and maintains that the previous office actions continue to overlook each and every element of Applicant's claimed invention.

35 U.S.C. § 102(e) Anticipation Rejections

Anticipation Rejection Based on U.S. Publication No. 2002/0114394 A1 to Ma

Claims 8 through 10, 12 and 18 stand rejected under 35 U.S.C. § 102(e) as being anticipated by Ma (U.S. Publication No. 2002/0114394 A1). Applicant respectfully traverses this rejection, as hereinafter set forth.

A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference. *Verdegaal Brothers v. Union Oil Co. of California*, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987). The identical invention must be shown in as complete detail as is contained in the claim. *Richardson v. Suzuki Motor Co.*, 9 USPQ2d 1913, 1920 (Fed. Cir. 1989).

Applicant submits that the Ma reference does not and cannot anticipate under 35 U.S.C. § 102 the presently claimed invention of independent claim 8, and claims 9, 10, 12, and 18 depending therefrom, because the Ma reference does not describe, either expressly or inherently, the identical inventions in as complete detail as are contained in the claims.

The Advisory Action alleges that in the cited references, "the motion vectors provide both direction and range (i.e. distance) information." (Advisory Action). Applicant respectfully disagrees.

Furthermore, the Final Office Action in the Response to Arguments section alleges:

Applicant's arguments filed 8/24/05 have been fully considered but they are not persuasive. Applicant asserts on pages 7-9 of the Remarks that Ma fails to disclose the selecting steps. However, paragraph [0040]-[0047] of Ma disclose the concept of selecting a search pattern from n profiles. Although SDSP is preferred, Ma nevertheless discloses selecting a search pattern. (Office Action, p. 3).

Applicant respectfully disagrees that the Ma reference anticipates Applicant's invention as claimed in independent claim 8 which reads:

8. A method of motion searching a macroblock, comprising:
determining a predicted motion vector;
calculating a predicted search range based on motion in any adjacent macroblocks arranged adjacent to said macroblock;
selecting a starting location based on said predicted motion vector and said predicted search range, said predicted search range defining a maximum distance that a current macroblock could have moved away from said predicted motion vector;
selecting a search pattern based on said predicted motion vector; and
diamond motion searching said macroblock from said selected starting location based on said selected search pattern to determine a best motion vector. (Emphasis added.)

For sometime, since at least Applicant's amendment of August 22, 2005, Applicant's claim 8 has included the limitations of "*selecting a starting location based on said predicted motion vector and said predicted search range, said predicted search range defining a maximum distance that a current macroblock could have moved away from said predicted motion vector . . .*" Applicant respectfully submits that the office actions have continued to overlook such limitations and to identify the disclosure of such limitations in the cited references.

The Final Office Action makes a generalized statement, specifically, "With respect to the newly amended limitation, Figure 6 of Ma already illustrate the concept of such predicted search range defining a maximum distance r that a current macroblock could have moved away from the predicted motion vector MV." (Final Office Action, p. 2). The disclosure of the Ma reference with respect to the Ma reference's Figure 6 relates to determining a motion vector and not selecting a starting location as claimed by Applicant. (Ma, Paragraph [0038]).

In contrast, the Ma reference discloses:

In [Ma's] scalable block-matching fast motion estimation, each method or algorithm is called a profile. (Ma, Paragraph [0039]).

Profile 1 (or “Simple” Profile)—only the SDSP . . . is used throughout the entire search. That is, in each search stage, the search point that yields the minimum matching error will be used as the search center of the new SDSP for the next search. Such process will be *repeated until* the center search point of SDSP yields the minimum matching error. (Ma, Paragraphs [0040]-[0041]; emphasis added).

Profile 2 (or “Basic” Profile)—either LDSP . . . or hexagon search pattern . . . is constantly used until the last step when the pattern’s center position yields the minimum SAD. In such case, only SDSP . . . will be used only once and wherever yields the minimum SAD will be considered as the position of found motion vector for that macroblock. (Ma, Paragraph [0042]; emphasis added).

Profile 3 (or “Pattern Adaptive” Profile)---either SDSP or LDSP is dynamically determined to be used for each block at its initial search. The decision of which one should be used can be made based on whether LDSP has been ever exploited during the search in the earlier-computed neighboring block(s) incurred in the ROS. (Ma, Paragraph [0043]).

The Ma reference discloses searching until a minimum matching error is achieved. However, whether such a “minimum” is but a local minimum or whether the minimum is determined from an exhaustive search of all macroblocks in an image is unclear. However, what is absolutely clear, is that the Ma reference is entirely silent regarding, among other things, Applicant’s claimed limitation of “a predicted search range”.

Specifically, the Ma reference **does not** disclose “selecting a starting location based on said predicted motion vector and said predicted search range, said predicted search range defining a maximum distance that a current macroblock could have moved away from said predicted motion vector; [and] selecting a search pattern based on said predicted motion vector” as claimed by Applicant in presently presented independent claim 8. Specifically and contrary to the disclosure of the Ma reference, Applicant’s invention as presently claimed recites selecting a starting location based on two separate inputs, namely the predicted motion vector **and** the predicted search range with the predicted search range defining a maximum distance that a current macroblock could have moved away from said predicted motion vector. Additionally, Applicant’s invention as presently claimed further recites selecting a search pattern based on the predicted motion vector which is in direct contradiction to the Ma references’ disclosure of “once

the position is found, only [small diamond search pattern] SDSP will be used throughout the remaining search process until the motion vector is found.” (Paragraph [0038]).

Therefore, presently presented independent claim 8, and claims 9, 10, 12, and 18 depending therefrom, can not be anticipated by the Ma reference under 35 U.S.C. § 102. Accordingly, such claims are allowable over the cited prior art and Applicant respectfully requests that such rejections be withdrawn.

35 U.S.C. § 103(a) Obviousness Rejections

Obviousness Rejection Based on U.S. Publication No. 2002/0114394 A1 to Ma in view of MPEG-4 Diamond Search Specification

Claims 11, 13 through 17 and 19 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Ma (U.S. Publication No. 2002/0114394 A1) in view of MPEG-4 Diamond Search Specification. Applicant respectfully traverses this rejection, as hereinafter set forth.

M.P.E.P. 706.02(j) sets forth the standard for a Section 103(a) rejection:

To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or combine reference teachings. Second, there must be a reasonable expectation of success. Finally, **the prior art reference (or references when combined) must teach or suggest all the claim limitations.** The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on applicant’s disclosure. *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991). (Emphasis added).

The 35 U.S.C. § 103(a) obviousness rejection of claims 11, 13 through 17, and 19 are improper because the elements for a *prima facie* case of obviousness are not met. Specifically, the rejection fails to meet the criterion that the prior art reference must teach or suggest all the claims limitations.

Regarding claims 11, 13 through 17, and 19, which at least indirectly depend from presently presented independent claim 8, Applicant sustains the above-proffered arguments that

Ma does not teach, disclose or motivate Applicant's invention as claimed in presently presented independent claim 8.

The Final Office Action (through reference to the Previous Office Action) introduces the MPEG-4 Diamond Search Specification and alleges:

Although Ma discloses substantially the same motion searching method, it is noted Ma differs from the present invention in that it fails to particularly quantify any numerical values as specified in claims 11, 13-17, and 19. The MPEG-4 Specification, however, teaches the concept of such well known standards wherein maximum difference SAD, threshold T, or any radius r, etc. maybe arbitrarily set according to the user's requirement. (Office Action, p. 6).

Even assuming arguendo, that the MPEG-4 Diamond Search Specification reference teaches numerical values, neither the Ma reference nor the MPEG-4 Diamond Search Specification teach, suggest or motivate Applicant's invention as claimed, namely:

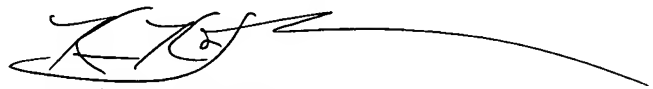
8. A method of motion searching a macroblock, comprising:
determining a predicted motion vector;
calculating a predicted search range based on motion in any adjacent macroblocks arranged adjacent to said macroblock;
selecting a starting location based on said predicted motion vector and said predicted search range, said predicted search range defining a maximum distance that a current macroblock could have moved away from said predicted motion vector;
selecting a search pattern based on said predicted motion vector; and
diamond motion searching said macroblock from said selected starting location based on said selected search pattern to determine a best motion vector. (Emphasis added.)

Therefore, Applicant respectfully requests that the rejections of dependent claims 11, 13 through 17, and 19 be withdrawn.

CONCLUSION

Applicant has amended claim 8. Claims 8 through 19 are believed to be in condition for allowance, and an early notice thereof is respectfully solicited. Should the Examiner determine that additional issues remain which might be resolved by a telephone conference, he is respectfully invited to contact Applicant's undersigned attorney.

Respectfully submitted,



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